

Work Order ID 61467

Thursday, August 26, 2010 11:43:35 AM

Page 1

Item ID: D212-664-201TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Turning Detail

Start Date: 8/26/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 9/3/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D212-664-241

Rev D

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA114
2-Turn first side as per Folio FA114
3- File transition lines smooth.

110

0.00



QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA114
2- File transition lines smooth.
3-Remove sand and plugs
4- scribe batch # and part # as per dwg

W/O:		WORK ORDER CHANGES					
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

aml 10/08/30

1 0

Quality Control

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

8/10/08/30

(H)

Quality Control

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

Chemical Conversion Coat as per within 24 hours of machining

(K)

MB 10-08-30
SAD

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Page 3

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Required Date: 9/3/2010 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

10-8-30

170



Packaging

Packaging

Packaging

Memo

Identify and stock in kanban rack
Location: X-tube cel

0.00

0.00

MB 10-08-30

180



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

10/08/30

CL 10/8/31

W/O:		WORK ORDER CHANGES					
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Picklist Print

Thursday, August 26, 2010 11:43:42 AM

Page 1

Work Order ID: 61467

Parent Item: D212-664-201TRN

Parent Item Name: Crosstube Turning Detail



Start Date: 8/26/2010

Required Date: 9/3/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 Removed polish EC verified DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6006-129 		Manufactured	No			120	Each	39.0000	1	1			
Crosstube Material													

Location

Loc Qty

Loc Code

LG

39

23970

2

26550

14

34690

11

→ 38338

12

_____ *onk 10/08/2010*

W/O:		WORK ORDER CHANGES					
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DART AEROSPACE LTD	Work Order: 41767
Description: Crosstube Assembly (205/212 High Aft)	Part Number: D212-664-241
Inspection Dwg: D212-664-241 Rev: D	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	205	✓		Vern	ML-7
	R0.063	+/-0.010	R.063	✓		R-6	N/A
	2.990	+0.005/-0.000	2.995	✓		Vern	AM-04
	5.237	+/-0.030	5.237	✓		"	"
	2.600	+0.005/-0.000	2.605	✓		"	"
	2.686	+0.005/-0.000	2.691	✓		"	"
	2.770	+0.005/-0.000	2.775	✓		"	"
	2.854	+0.005/-0.000	2.859	✓		"	"
	2.938	+0.005/-0.000	2.943	✓		"	"
	3.021	+0.005/-0.000	3.026	✓		"	"
	3.133	+0.005/-0.000	3.138	✓		"	"
	3.179	+0.005/-0.000	3.184	✓		"	"
SIDE B	0.200	+/-0.010	205	✓		Vern	ML-7
	R0.063	+/-0.010	R.063	✓		R-6	N/A
	2.990	+0.005/-0.000	2.990	✓		Vern	AM-04
	5.237	+/-0.030	5.240	✓		"	"
	2.600	+0.005/-0.000	2.605	✓		"	"
	2.686	+0.005/-0.000	2.691	✓		"	"
	2.770	+0.005/-0.000	2.775	✓		"	"
	2.854	+0.005/-0.000	2.859	✓		"	"
	2.938	+0.005/-0.000	2.943	✓		"	"
	3.021	+0.005/-0.000	3.026	✓		"	"
	3.133	+0.005/-0.000	3.138	✓		"	"
	3.179	+0.005/-0.000	3.184	✓		"	"
	124.362	+/-0.020	124.362	✓		M-type	AM-01

Measured by: <i>Am</i>	Audited by: <i>S</i>	Preliminary Approval:	N/A
Date: 10/08/30	Date: 10/08/30	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-201)	KJ/JLM	
B	06.03.09	Tolerance for 5.237 was +/-0.001	KJ/JLM	
C	07.05.08	Dwg Rev. updated	KJ/JLM	
D	10.08.03	Dimension 124.362 was 124.36	KJ <i>Am</i>	<i>Am</i>

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Item	Qty -241	Qty -241B	Part Number	Description
1	X		D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		X	D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D6006-129	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	4	4	MS21920-28	CLAMP (OR MS21920-30)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.362±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: D212-664-241 = 44.2 lbs (PER IIN-D212-664)
D212-664-241B = 44.2 lbs (PER IIN-D212-664)
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3, C6-3 & A8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	PH	DRAWING NO.	REV. D
MFG. APPR.	PH	D212-664-241	SHEET 1 OF 4
APPROVED	PH	TITLE	SCALE
DE APPR.	PH	CROSSTUBE ASSY (205/212 HI AFT)	NTS
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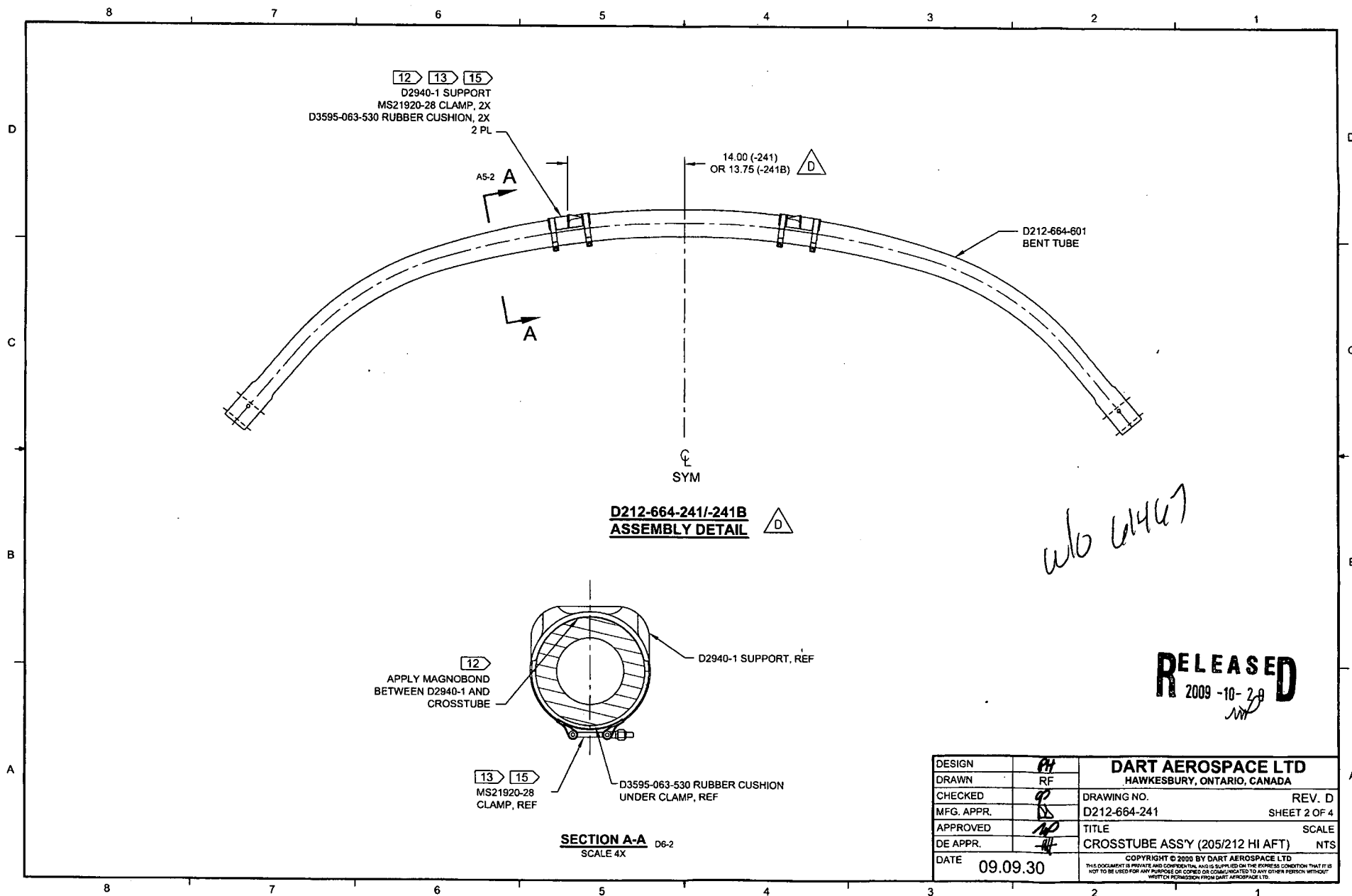
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Dart Aerospace Ltd

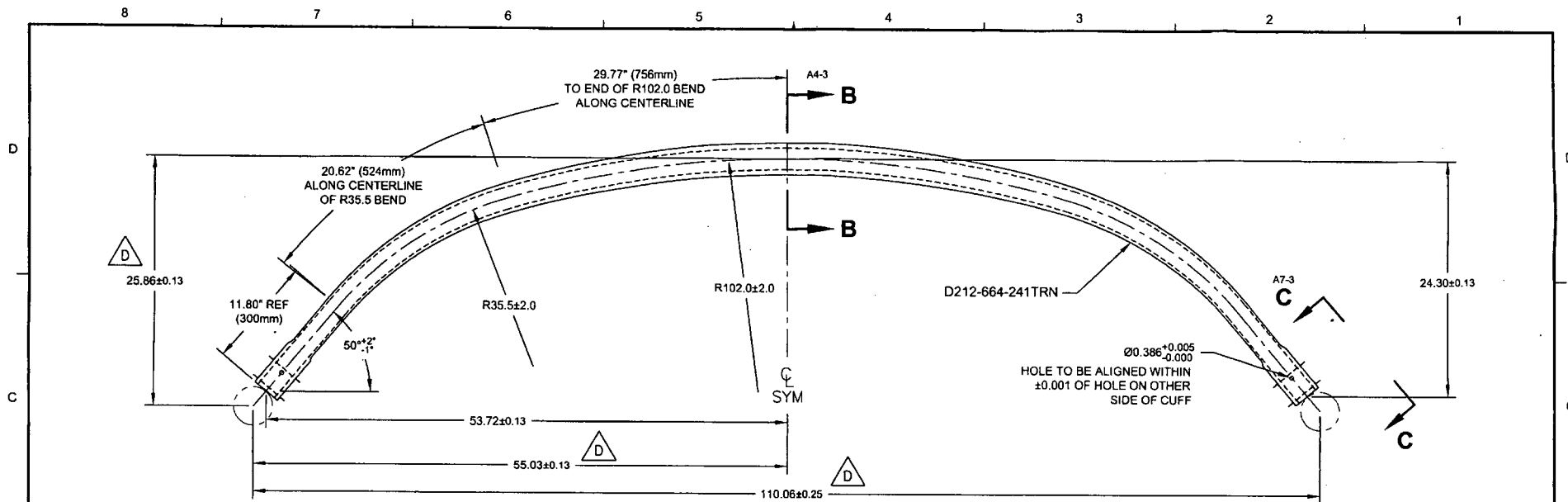
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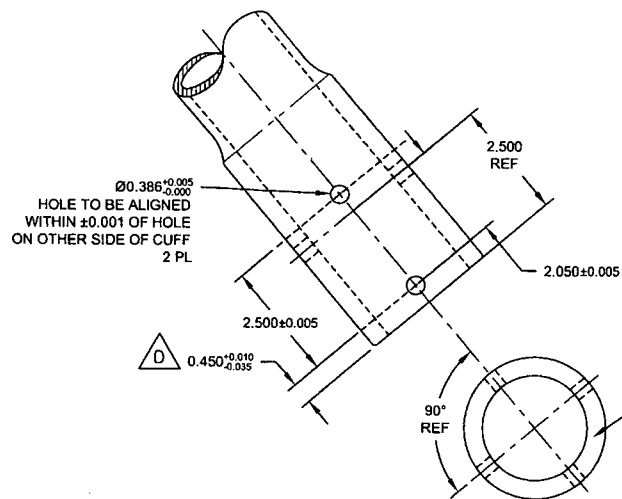
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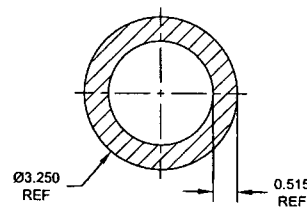
NOTE: Date & initial all entries



D212-664-601 10 D
BENDING AND DRILLING DETAIL



VIEW C-C: CUFF DETAIL D2-3
 SCALE 3X



SECTION B-B D4-3
 SCALE 4X

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	92	DRAWING NO.	REV. D
MFG. APPR.	BS	D212-664-241	SHEET 3 OF 4
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RELEASED
 2009-10-29

w/o 61467

W/O:		WORK ORDER CHANGES					
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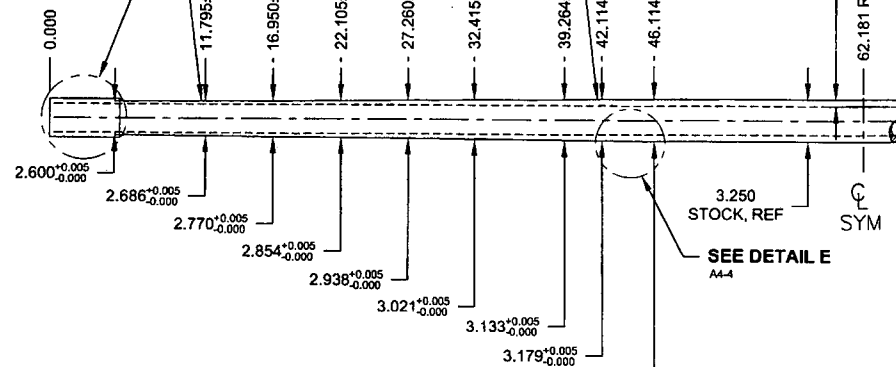
NOTE: Date & initial all entries

R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS

R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS

0.515 WALL
STOCK, REF

SEE DETAIL D



TAPER UNIFORMLY FROM
THROUGH TO 3.276^{+0.005}/_{-0.000}
RUNNING OFF PART

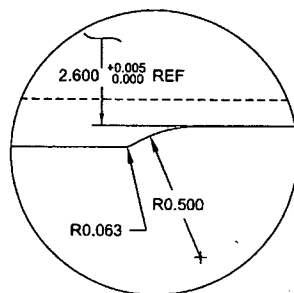
30° X 0.500 DEEP
CHAMFER

R0.063

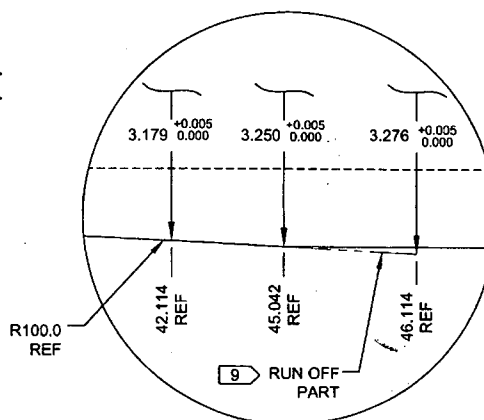
SEE DETAIL F
A7-4

DETAIL D:
CROSSTUBE CUFF
SCALE 5X

D212-664-241TRN
TURNING DETAIL



DETAIL F:
CUFF TRANSITION
SCALE 10X



DETAIL E:
TAPER RUN-OFF
NOT TO SCALE

w/b 4/14/7

RELEASED
2009-10-29

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	Q	DRAWING NO.	REV. D
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